

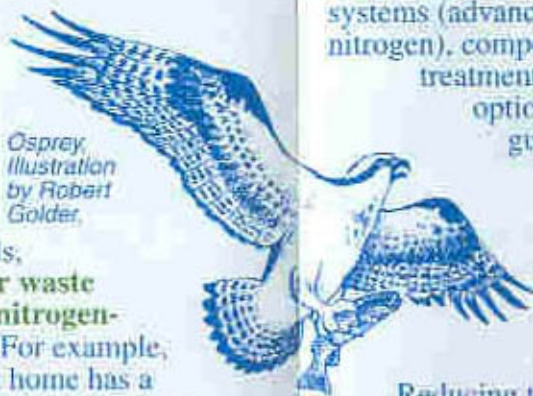
WHAT CAN WE DO AS CITIZENS?

How we use land influences the amount of atmospheric nitrogen that reaches a coastal water body. Forests and plants take up some of the nitrogen that enters through atmospheric sources. If forest cover increases, more nitrogen may be taken up by trees; conversely, if forests are cut down for development, more nitrogen may leach to the subsoil and travel to groundwater, or run-off paved surfaces and travel to a water body. Promoting the acquisition of open space in one's community is one way of promoting healthier estuaries.

The type of land use also influences fertilizer use. Some of the nitrogen in fertilizer volatilizes or otherwise escapes to the atmosphere; some is not taken up by the target plants and leaches to groundwater. Heavy fertilizer use near the waterfront can add large amounts of fertilizer directly to a water body.

Also, in our own backyards, **the way we dispose of our waste products contributes to nitrogen-loading** to coastal waters. For example, on Cape Cod almost every home has a septic system. Gray water (from showers, sinks, washing machines) and black water (from toilets) enter the system. There bacterial action transforms some kinds of nitrogen compounds and removes others; additional treatment occurs as the water leaves the system and travels through the soil. However, not all the nitrogen is removed and some makes its way to groundwater. Homes that are very close to

*Osprey
Illustration
by Robert
Golder.*



the water contribute more nitrogen from septic systems than those farther away because there is less opportunity for attenuation during travel.

WHAT CAN WE DO AS COMMUNITIES?

In areas that are not fully developed, planning for future growth can decrease the potential increase in nitrogen loading. Zoning changes that reduce the number of buildable lots are an example of proactive conduct.

Landscaping with plants that need little or no fertilizer and learning how to apply fertilizers conservatively may lessen nitrogen impacts on coastal waters.

What options are available to reduce septic system nitrogen? Solutions might include a mix of open space acquisition, the use of denitrifying systems (advanced systems that remove more nitrogen), composting toilets, community treatment systems, sewers, etc. These options may be developed under the guidance of an overlay district, or other management entity.

Finally, communities have to decide what level of water quality they want to achieve and how much they are willing or able to pay for it.

Reducing the amount of nitrogen will require a concerted community effort and community will to make hard choices. But, the costs must be weighed against the cost of delaying action, or of doing nothing. Loss of inshore nursery and spawning areas, loss of scallops, blue crabs and other valued resources all have an economic cost to the community. Loss of the aesthetic value of clear, clean waters also has an economic value.